

What is claimed is:

1. A plasma resistant component capable of being exposed to a plasma in a process chamber, the component comprising:
 - (a) a structure; and
 - (b) an electroplated coating on the structure, the electroplated coating comprising yttrium-containing species.
2. A component according to claim 1 wherein the yttrium-containing species comprises one or more of elemental yttrium and yttrium oxide.
3. A component according to claim 1 wherein the yttrium-containing species comprises yttrium oxide, and wherein the electroplated coating further comprises aluminum oxide or zirconium oxide.
4. A component according to claim 3 wherein the electroplated coating comprises a compound comprising a stoichiometric ratio of yttrium oxide and aluminum oxide.
5. A component according to claim 3 wherein the electroplated coating comprises partially stabilized zirconium oxide.
6. A component according to claim 1 wherein the electroplated coating comprises a thickness having a gradually changing concentration of the yttrium-containing species therethrough.

7. A process chamber comprising:
- (a) a wall around a process zone;
 - (b) a substrate support in the process zone;
 - (c) a ring about the substrate;
 - (d) a gas distributor;
 - (e) a gas energizer; and
 - (f) a gas exhaust port,

wherein at least one of the wall, substrate support, ring, or gas distributor, comprises a plasma resistant component capable of being exposed to a plasma in a process chamber, the component comprising a structure having an electroplated coating comprising yttrium-containing species; and

whereby a substrate transported into the process chamber can be processed by a gas released by the gas supply, energized by the gas energizer, and exhausted by the gas exhaust.

8. A component according to claim 7 wherein the yttrium-containing species comprises one or more of elemental yttrium and yttrium oxide.

9. A component according to claim 7 wherein the yttrium-containing species comprises yttrium oxide, and wherein the electroplated coating further comprises aluminum oxide or zirconium oxide.

10. A component according to claim 7 wherein the electroplated coating comprises a compound comprising a stoichiometric ratio of yttrium oxide and aluminum oxide.

11. A component according to claim 7 wherein the electroplated coating comprises partially stabilized zirconium oxide.

12. A component according to claim 7 wherein the electroplated coating comprises a thickness having a gradually changing concentration of the yttrium-containing species therethrough.

13. A method of forming a plasma resistant component capable of being exposed to a plasma in a process chamber, the method comprising:

- (a) forming a structure comprising a surface; and
- (b) electroplating yttrium onto the surface of the structure.

14. A method according to claim 13 further comprising depositing aluminum-containing species or zirconium-containing species onto the surface.

15. A method according to claim 13 wherein (b) comprises immersing the surface in an electroplating bath, and varying one or more electroplating conditions to form an electroplated coating having a thickness with a first concentration gradient of yttrium therethrough.

16. A method according to claim 13 comprising varying the electroplating conditions to form an electroplated coating comprising a second concentration gradient of aluminum through the thickness of the electroplated coating.

17. A method according to claim 13 comprising electroplating a first layer comprising aluminum or zirconium onto the surface, electroplating a second layer comprising yttrium onto the first layer, and annealing the first and second layers.

18. A method according to claim 17 comprising annealing the layers to form oxidized species.

19. A method according to claim 13 comprising electroplating a layer comprising a mixture of (i) yttrium and (ii) aluminum or zirconium onto the surface, and annealing the layer.

20. A method of forming a plasma resistant component capable of being exposed to a plasma in a process chamber, the method comprising:

- (a) forming a structure comprising a surface;
- (b) electroplating a first layer comprising aluminum onto the surface;
- (c) electroplating a second layer comprising yttrium onto the first layer; and
- (d) annealing the first and second layers.

21. A method according to claim 20 wherein in (d), the first and second layers are annealed to form an electroplated coating having a thickness comprising a first concentration gradient of yttrium-containing species and a second concentration gradient of aluminum-containing species therethrough.

22. A method according to claim 20 wherein the layers are annealed to form oxidized yttrium and aluminum species.